CLAIMS

1. An RF power amplifier having an amplifier (15) and a controller (20,170) having means (20) for detecting power reflected from a load on an output of the amplifier, and means (170) for controlling an output power of the amplifier in response to the detected power reflected, to increase the output power to compensate for a drop in output power caused by changes in the power reflected, and to decrease the output power to compensate for an increase in output power caused by changes in the power reflected.

2. The power amplifier of claim 1, the means (170) for controlling comprising means (50) for determining an integral over time of the detected reflected power, for use in the compensation.

3. The power amplifier of claim 1 or 2, the means (50) for determining the integral being implemented using solely analogue signal processing components.

4. The power amplifier of any preceding claim, the means (50) for determining the integral being integrated on a substrate with the amplifier (15).

5. The power amplifier of any preceding claim, the means (50) for determining an integral comprising means (60, 90, 100) for determining a difference between a reflected signal and a reference, and determining an integral of this difference.

6. The power amplifier of claim 5, having a controllable reference generator (60) arranged to output the reference, at a selectable value.

7. The power amplifier of claim 6, the reference generator (60) comprising means (100) for adding an initial reference to a difference of the initial reference and the reflected signal to generate the reference.

8. The power amplifier of any preceding claim, the control comprising gain control of the amplifier.

9. A power amplifier having an RF amplifier (15) and a controller (170) integrated on the same substrate as the RF amplifier and having means (50) for determining an integral over time of a signal representing a mismatch of a load on the output, the signal being derived from an output of the amplifier, the controller being arranged to use the integral to control the amplifier.

10. The power amplifier of claim 9 having means (80) for deriving the signal representing the mismatch from an outgoing power amplified signal from the amplifier (15).

11. The power amplifier of claim 10 having means (20) for deriving the signal representing the mismatch additionally from power reflected from a load on an output of the amplifier (15).

12. A mobile battery powered device (200) having a wireless transceiver, the transceiver having the power amplifier of any of claims 1 to 11.

13. A method of controlling a power amplifier having the steps of detecting a signal reflected from a load, determining an integral of the reflected signal and controlling an output of the power amplifier according to the integral.